SEQUENCE LISTING

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<120> ITI-D1 KUNITZ DOMAIN MUTANTS AS HNE INHIBITORS

<130> D0617.7005US01

<140> 10/038,722
<141> 2002-01-08

<150> US 08/849,406
<151> 1999-07-21

<150> PCT/US95/16349
<151> 1995-12-15

<150> US 08/358,160
<151> 1994-12-16

<150> US 08/133,031
<151> 1992-02-28

<160> 140

<170> PatentIn version 3.1

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tacaatgcta aagcaggcct gtgccagacc tttgtatacg gtggttgccg tgctaagcgt 180

aacaacttta aatcggccga agattgcatg cgtacctgcg gtggcgccgc tgaaactgtt 240

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<210> 2
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Gly Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys
            20                  25                  30

Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys
        35                  40                  45

Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys
    50                  55                  60

Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Ala Glu Thr Val
65                  70                  75                  80

Glu Ser Cys Leu Ala Lys Pro His Thr Glu Asn Ser
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<210> 3
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<223> IIIsp::itiD1::mature III fusion gene

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tataatggta catccatggc ctgtgagact ttccagtacg gcggctgcat gggcaacggt     180

aacaacttcg tcacagaaaa ggagtgtctg cagacctgcc gaactgtggg cgccgctgaa     240

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<210> 4
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<223> IIIsp::itiD1::mature III fusion gene

<400> 4

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1               5                   10                  15
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Gly Ala Lys Glu Asp Ser Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys
20 25 30

Met Gly Met Thr Ser Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys
35 40 45

Glu Thr Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val
50 55 60

Thr Glu Lys Glu Cys Leu Gln Thr Cys Arg Thr Val Gly Ala Ala Glu
65 70 75 80

Thr Val Glu Ser Cys Leu Ala Lys Pro His Thr Glu Asn Ser Phe
85 90 95

<210> 5
<211> 58
<212> PRT
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<223> Consensus Kunitz domain

<400> 5

Arg Pro Asp Phe Cys Leu Leu Pro Ala Glu Thr Gly Pro Cys Arg Ala
1 5 10 15

Met Ile Pro Arg Phe Tyr Tyr Asn Ala Lys Ser Gly Lys Cys Glu Pro
20 25 30

Phe Ile Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe Lys Thr Glu
35 40 45

Glu Glu Cys Arg Arg Thr Cys Gly Gly Ala
50 55

<210> 6
<211> 58
<212> PRT
<213> Bos Taurus

<400> 6

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 7
<211> 58
<212> PRT
<213> Artificial Sequence

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<223> Epi-HNE-1

<400> 7

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 8
<211> 62
<212> PRT
<213> Artificial Sequence

<220>

<223> Epi-HNE-2

<400> 8

Glu Ala Glu Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly
1 5 10 15

Pro Cys Ile Ala Phe Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly
20 25 30

Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn
35 40 45

Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55 60

<210> 9
<211> 58
<212> PRT
<213> Artificial Sequence

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<223> EpiNE7

<400> 9

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 10
<211> 58
<212> PRT
<213> Artificial Sequence

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<223> EpiNE3

<400> 10

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Gly
1 5 10 15

Phe Phe Ser Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 11
<211> 58
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<213> Artificial Sequence

<220>

<223> EpiNE6

<400> 11

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Gly
1 5 10 15

Phe Phe Gln Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 12
<211> 58
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<223> EpiNE4

<400> 12

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Ile Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 13
<211> 58
<212> PRT
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<223> EpiNE8

<400> 13

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Phe Phe Lys Arg Ser Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 14
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> EpiNE5

<400> 14

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Gln Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 15
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> EpiNE2

<400> 15

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Leu Phe Lys Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 16
<211> 58
<212> PRT
<213> Homo sapiens

<400> 16

Lys Glu Asp Ser Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Met Gly
1 5 10 15

Met Thr Ser Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
20 25 30

Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
35 40 45

Lys Asp Cys Leu Gln Thr Cys Arg Thr Val
50 55

<210> 17
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<223> BITI-E7-141

<400> 17

Arg Pro Asp Phe Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
35 40 45

Lys Asp Cys Leu Gln Thr Cys Arg Gly Ala
50 55

<210> 18
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<212> PRT
<213> Artificial Sequence

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<223> MUTT26A

<400> 18

Arg Pro Asp Phe Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Gly Ala Ser Met Ala Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
35 40 45

Lys Asp Cys Leu Gln Thr Cys Arg Gly Ala
50 55

<210> 19
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> MUTQE

<400> 19

Arg Pro Asp Phe Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
35 40 45

Lys Asp Cys Leu Gln Thr Cys Arg Gly Ala
50 55

<210> 20
<211> 58
<212> PRT
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<220>

<223> MUT1619

<400> 20

Arg Pro Asp Phe Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Val Gly
1 5 10 15

Met Phe Ser Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
35 40 45

Lys Asp Cys Leu Gln Thr Cys Arg Gly Ala
50 55

<210> 21
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<220>

<223> ITI-D1E7

<400> 21

Lys Glu Asp Ser Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
20 25 30

Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
35 40 45

Lys Asp Cys Leu Gln Thr Cys Arg Gly Ala
50 55

<210> 22
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> AMINO1

<400> 22

Lys Glu Asp Phe Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
20 25 30

Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
35 40 45

Lys Asp Cys Leu Gln Thr Cys Arg Gly Ala
50 55

<210> 23
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> AMINO2

<400> 23

Lys Pro Asp Ser Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
20 25 30

Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
35 40 45

Lys Asp Cys Leu Gln Thr Cys Arg Gly Ala
50 55

<210> 24
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> MUTP1

<400> 24

Arg Pro Asp Phe Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Ile Gly
1 5 10 15

Met Phe Ser Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
20 25 30

Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
35 40 45

Lys Asp Cys Leu Gln Thr Cys Arg Gly Ala
50 55

<210> 25
<211> 58
<212> PRT

<213> Homo sapiens

<400> 25

Thr Val Ala Ala Cys Asn Leu Pro Ile Val Arg Gly Pro Cys Arg Ala
1 5 10 15

Phe Ile Gln Leu Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Leu
20 25 30

Phe Pro Tyr Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe Tyr Ser Glu
35 40 45

Lys Glu Cys Arg Glu Tyr Cys Gly Val Pro
50 55

<210> 26
<211> 56
<212> PRT
<213> Artificial Sequence

<220>

<223> Epi-HNE-3

<400> 26

Ala Ala Cys Asn Leu Pro Ile Val Arg Gly Pro Cys Ile Ala Phe Phe
1 5 10 15

Pro Arg Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Leu Phe Pro
20 25 30

Tyr Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe Tyr Ser Glu Lys Glu
35 40 45

Cys Arg Glu Tyr Cys Gly Val Pro
50 55

<210> 27
<211> 56
<212> PRT
<213> Artificial Sequence

<220>

<223> Epi-HNE-4

<400> 27

Glu Ala Cys Asn Leu Pro Ile Val Arg Gly Pro Cys Ile Ala Phe Phe
1 5 10 15

Pro Arg Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Leu Phe Pro
20 25 30

Tyr Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe Tyr Ser Glu Lys Glu
35 40 45

Cys Arg Glu Tyr Cys Gly Val Pro
    50   55

<210> 28
<211> 58
<212> PRT
<213> Homo sapiens

<400> 28

Val Arg Glu Val Cys Ser Glu Gln Ala Glu Thr Gly Pro Cys Arg Ala
1   5   10   15

Met Ile Ser Arg Trp Tyr Phe Asp Val Thr Glu Gly Lys Cys Ala Pro
            20   25   30

Phe Phe Tyr Gly Gly Cys Gly Gly Asn Arg Asn Asn Phe Asp Thr Glu
        35   40   45

Glu Tyr Cys Met Ala Val Cys Gly Ser Ala
    50   55

<210> 29
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> DPI.1.1

<400> 29

Val Arg Glu Val Cys Ser Glu Gln Ala Tyr Thr Gly Pro Cys Ile Ala
1   5   10   15

Phe Phe Pro Arg Tyr Tyr Phe Asp Val Thr Glu Gly Lys Cys Gln Thr
            20   25   30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Asp Thr Glu
        35   40   45

Glu Tyr Cys Met Ala Val Cys Gly Ser Ala
    50   55

<210> 30
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> DPI.1.2

<400> 30

Val Arg Glu Val Cys Ser Glu Gln Ala Glu Thr Gly Pro Cys Ile Ala
1   5   10   15

Met Phe Ser Arg Trp Tyr Phe Asp Val Thr Glu Gly Lys Cys Ala Pro
20 25 30

Phe Val Tyr Gly Gly Cys Gly Gly Asn Arg Asn Asn Phe Asp Thr Glu
35 40 45

Glu Tyr Cys Met Ala Val Cys Gly Ser Ala
50 55

<210> 31
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> DPI.1.3

<400> 31

Val Arg Glu Val Cys Ser Glu Gln Ala Glu Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Ser Arg Trp Tyr Phe Asp Val Thr Glu Gly Lys Cys Ala Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Arg Asn Asn Phe Asp Thr Glu
35 40 45

Glu Tyr Cys Met Ala Val Cys Gly Ser Ala
50 55

<210> 32
<211> 58
<212> PRT
<213> Homo sapiens

<400> 32

Asn Ala Glu Ile Cys Leu Leu Pro Leu Asp Tyr Gly Pro Cys Arg Ala
1 5 10 15

Leu Leu Leu Arg Tyr Tyr Tyr Asp Arg Tyr Thr Gln Ser Cys Arg Gln
20 25 30

Phe Leu Tyr Gly Gly Cys Glu Gly Asn Ala Asn Asn Phe Tyr Thr Trp
35 40 45

Glu Ala Cys Asp Asp Ala Cys Trp Arg Ile
50 55

<210> 33
<211> 58
<212> PRT
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<223> DPI.2.1

<400> 33

Asn Ala Glu Ile Cys Leu Leu Pro Leu Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Pro Arg Tyr Tyr Tyr Asp Arg Tyr Thr Gln Ser Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Ala Asn Asn Phe Tyr Thr Trp
35 40 45

Glu Ala Cys Asp Asp Ala Cys Trp Arg Ile
50 55

<210> 34
<211> 58
<212> PRT
<213> Artificial Sequence

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<223> DPI.2.2

<400> 34

Asn Ala Glu Ile Cys Leu Leu Pro Leu Asp Tyr Gly Pro Cys Ile Ala
1 5 10 15

Leu Phe Leu Arg Tyr Tyr Tyr Asp Arg Tyr Thr Gln Ser Cys Arg Gln
20 25 30

Phe Val Tyr Gly Gly Cys Glu Gly Asn Ala Asn Asn Phe Tyr Thr Trp
35 40 45

Glu Ala Cys Asp Asp Ala Cys Trp Arg Ile
50 55

<210> 35
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> DPI.2.3

<400> 35

Asn Ala Glu Ile Cys Leu Leu Pro Leu Asp Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Leu Arg Tyr Tyr Tyr Asp Arg Tyr Thr Gln Ser Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Ala Asn Asn Phe Tyr Thr Trp
35 40 45

Glu Ala Cys Asp Asp Ala Cys Trp Arg Ile
    50   55

<210> 36
<211> 61
<212> PRT
<213> Homo sapiens

<400> 36

Val Pro Lys Val Cys Arg Leu Gln Val Ser Val Asp Asp Gln Cys Glu
1   5   10   15

Gly Ser Thr Glu Lys Tyr Phe Phe Asn Leu Ser Ser Met Thr Cys Glu
            20   25   30

Lys Phe Phe Ser Gly Gly Cys His Arg Asn Arg Ile Glu Asn Arg Phe
        35   40   45

Pro Asp Glu Ala Thr Cys Met Gly Phe Cys Ala Pro Lys
    50   55   60

<210> 37
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> DPI.3.1

<400> 37

Val Pro Lys Val Cys Arg Leu Gln Val Val Arg Gly Pro Cys Ile Ala
1   5   10   15

Phe Phe Pro Arg Trp Phe Phe Asn Leu Ser Ser Met Thr Cys Val Leu
            20   25   30

Phe Pro Tyr Gly Gly Cys Gln Gly Asn Gly Asn Arg Phe Pro Asp Glu
        35   40   45

Ala Thr Cys Met Gly Phe Cys Ala Pro Lys
    50   55

<210> 38
<211> 61
<212> PRT
<213> Artificial Sequence

<220>

<223> DPI.3.2

<400> 38

Val Pro Lys Val Cys Arg Leu Gln Val Ser Val Asp Asp Gln Cys Ile
1   5   10   15

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Gly Ser Phe Glu Lys Tyr Phe Phe Asn Leu Ala Ser Met Thr Cys Glu
            20                  25                  30

Thr Phe Val Ser Gly Gly Cys His Arg Asn Arg Ile Glu Asn Arg Phe
        35                  40                  45

Pro Asp Glu Ala Thr Cys Met Gly Phe Cys Ala Pro Lys
    50                  55                  60


<210>  39
<211>  58
<212>  PRT
<213>  Artificial Sequence

<220>

<223>  DPI.3.3

<400>  39

Val Pro Lys Val Cys Arg Leu Gln Val Val Ala Gly Pro Cys Ile Gly
1               5                   10                  15

Phe Phe Lys Arg Tyr Phe Phe Ala Leu Ser Ser Met Thr Cys Glu Thr
            20                  25                  30

Phe Val Ser Gly Gly Cys His Arg Asn Arg Asn Arg Phe Pro Asp Glu
        35                  40                  45

Ala Thr Cys Met Gly Phe Cys Ala Pro Lys
    50                  55


<210>  40
<211>  58
<212>  PRT
<213>  Homo sapiens

<400>  40

Ile Pro Ser Phe Cys Tyr Ser Pro Lys Asp Glu Gly Leu Cys Ser Ala
1               5                   10                  15

Asn Val Thr Arg Tyr Tyr Phe Asn Pro Arg Tyr Arg Thr Cys Asp Ala
            20                  25                  30

Phe Thr Tyr Thr Gly Cys Gly Gly Asn Asp Asn Asn Phe Val Ser Arg
        35                  40                  45

Glu Asp Cys Lys Arg Ala Cys Ala Lys Ala
    50                  55


<210>  41
<211>  58
<212>  PRT
<213>  Artificial Sequence

<220>
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<223> DPI.4.1

<400> 41

Ile Pro Ser Phe Cys Tyr Ser Pro Lys Ser Ala Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Tyr Phe Asn Pro Arg Tyr Arg Thr Cys Glu Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Ser Arg
35 40 45

Glu Asp Cys Lys Arg Ala Cys Ala Lys Ala
50 55

<210> 42
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> DPI.4.2

<400> 42

Ile Pro Ser Phe Cys Tyr Ser Pro Lys Asp Glu Gly Leu Cys Ile Ala
1 5 10 15

Phe Phe Thr Arg Tyr Tyr Phe Asn Pro Arg Tyr Arg Thr Cys Asp Ala
20 25 30

Phe Thr Tyr Thr Gly Cys Gly Gly Asn Asp Asn Asn Phe Val Ser Arg
35 40 45

Glu Asp Cys Lys Arg Ala Cys Ala Lys Ala
50 55

<210> 43
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> DPI.4.3

<400> 43

Ile Pro Ser Phe Cys Tyr Ser Pro Lys Asp Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Thr Arg Tyr Tyr Phe Asn Pro Arg Tyr Arg Thr Cys Asp Thr
20 25 30

Phe Val Tyr Gly Gly Cys Gly Gly Asn Asp Asn Asn Phe Val Ser Arg
35 40 45

Glu Asp Cys Lys Arg Ala Cys Ala Lys Ala
50 55

<210> 44
<211> 58
<212> PRT
<213> Homo sapiens

<400> 44

Met His Ser Phe Cys Ala Phe Lys Ala Asp Asp Gly Pro Cys Lys Ala
1 5 10 15

Ile Met Lys Arg Phe Phe Phe Asn Ile Phe Thr Arg Gln Cys Glu Glu
20 25 30

Phe Ile Tyr Gly Gly Cys Glu Gly Asn Gln Asn Arg Phe Glu Ser Leu
35 40 45

Glu Glu Cys Lys Lys Met Cys Thr Arg Asp
50 55

<210> 45
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> DPI.5.1

<400> 45

Met His Ser Phe Cys Ala Phe Lys Ala Ser Ala Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Phe Asn Ile Phe Thr Arg Gln Cys Glu Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Arg Phe Glu Ser Leu
35 40 45

Glu Glu Cys Lys Lys Met Cys Thr Arg Asp
50 55

<210> 46
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> DPI.5.2

<400> 46

Met His Ser Phe Cys Ala Phe Lys Ala Asp Asp Gly Pro Cys Ile Ala
1 5 10 15

Ile Phe Lys Arg Phe Phe Phe Asn Ile Phe Thr Arg Gln Cys Glu Glu
20 25 30

Phe Ile Tyr Gly Gly Cys Glu Gly Asn Gln Asn Arg Phe Glu Ser Leu
35 40 45

Glu Glu Cys Lys Lys Met Cys Thr Arg Asp
50 55

<210> 47
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> DPI.5.3

<400> 47

Met His Ser Phe Cys Ala Phe Lys Ala Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Lys Arg Phe Phe Phe Asn Ile Phe Thr Arg Gln Cys Glu Thr
20 25 30

Phe Ile Tyr Gly Gly Cys Glu Gly Asn Gln Asn Arg Phe Glu Ser Leu
35 40 45

Glu Glu Cys Lys Lys Met Cys Thr Arg Asp
50 55

<210> 48
<211> 58
<212> PRT
<213> Homo sapiens

<400> 48

Lys Pro Asp Phe Cys Phe Leu Glu Glu Asp Pro Gly Ile Cys Arg Gly
1 5 10 15

Tyr Ile Thr Arg Tyr Phe Tyr Asn Asn Gln Thr Lys Gln Cys Glu Arg
20 25 30

Phe Lys Tyr Gly Gly Cys Leu Gly Asn Met Asn Asn Phe Glu Thr Leu
35 40 45

Glu Glu Cys Lys Asn Ile Cys Glu Asp Gly
50 55

<210> 49
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> DPI.6.1

<400> 49

Lys Pro Asp Phe Cys Phe Leu Glu Glu Ser Ala Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Asn Gln Thr Lys Gln Cys Glu Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Glu Thr Leu
35 40 45

Glu Glu Cys Lys Asn Ile Cys Glu Asp Gly
50 55

<210> 50
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> DPI.6.2

<400> 50

Lys Pro Asp Phe Cys Phe Leu Glu Glu Asp Pro Gly Ile Cys Val Gly
1 5 10 15

Tyr Phe Thr Arg Tyr Phe Tyr Asn Asn Gln Thr Lys Gln Cys Glu Arg
20 25 30

Phe Lys Tyr Gly Gly Cys Leu Gly Asn Met Asn Asn Phe Glu Thr Leu
35 40 45

Glu Glu Cys Lys Asn Ile Cys Glu Asp Gly
50 55

<210> 51
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> DPI.6.3

<400> 51

Lys Pro Asp Phe Cys Phe Leu Glu Glu Asp Pro Gly Ile Cys Val Gly
1 5 10 15

Phe Phe Thr Arg Tyr Phe Tyr Asn Asn Gln Thr Lys Gln Cys Glu Arg
20 25 30

Phe Val Tyr Gly Gly Cys Leu Gly Asn Met Asn Asn Phe Glu Thr Leu
35 40 45

Glu Glu Cys Lys Asn Ile Cys Glu Asp Gly
    50   55

<210> 52
<211> 58
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Glu Glu Cys Lys Asn Ile Cys Glu Asp Gly
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Phe Val Tyr Gly Gly Cys Gln Gly Asn Met Asn Asn Phe Glu Thr Leu
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Glu Glu Cys Lys Asn Ile Cys Glu Asp Gly
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Phe Lys Tyr Ser Gly Cys Gly Gly Asn Glu Asn Asn Phe Thr Ser Lys
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<223> DPI.7.2

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35 40 45

Gln Glu Cys Leu Arg Ala Cys Lys Lys Gly
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35 40 45

Gln Glu Cys Leu Arg Ala Cys Lys Lys Gly
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<210> 62
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<212> PRT

<213> Homo sapiens

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Phe Trp Tyr Gly Gly Cys Gly Gly Asn Glu Asn Lys Phe Gly Ser Gln
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Phe Val Tyr Gly Gly Cys Gly Gly Asn Glu Asn Lys Phe Gly Ser Gln
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<223> DPI.8.3

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<210> 66
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Glu Lys Cys Glu Lys Phe Cys Lys Phe Thr
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<223> DPI.9.3

<400> 69

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35 40 45

Asp Val Ala Val Leu Pro Phe Ser Asn Ser Thr Asn Asn Gly Leu Leu
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Phe Ile Asn Thr Thr Ile Ala Ser Ile Ala Ala Lys Glu Glu Gly Val
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Ser Leu Asp Lys Arg Ala Ala Cys Asn Leu Pro Ile Val Arg Gly Pro
85 90 95

Cys Ile Ala Phe Phe Pro Arg Trp Ala Phe Asp Ala Val Lys Gly Lys
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Cys Val Leu Phe Pro Tyr Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe
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<223> BstBI-AatII-EcoRI cassette for expression of Epi-HNE-4

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35 40 45

Asp Val Ala Val Leu Pro Phe Ser Asn Ser Thr Asn Asn Gly Leu Leu
50 55 60

Phe Ile Asn Thr Thr Ile Ala Ser Ile Ala Ala Lys Glu Glu Gly Val
65 70 75 80

Ser Leu Asp Lys Arg Glu Ala Cys Asn Leu Pro Ile Val Arg Gly Pro
85 90 95

Cys Ile Ala Phe Phe Pro Arg Trp Ala Phe Asp Ala Val Lys Gly Lys
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Phe Ile Asn Thr Thr Ile Ala Ser Ile Ala Ala Lys Glu Glu Gly Val
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Ser Leu Asp Lys Arg Ala Ala Cys Asn Leu Pro Ile Val Arg Gly Pro
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Cys Ile Ala Phe Phe Pro Arg Trp Ala Phe Asp Ala Val Lys Gly Lys
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Met Ala Cys Glu Thr Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn
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Asn Phe Val Thr Glu Lys Glu Cys Leu Gln Thr Cys Arg Thr Val Ala
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Ala Cys Asn Leu Pro Ile Val Arg Gly Pro Cys Arg Ala Phe Ile Gln
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Leu Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Leu Phe Pro Tyr
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35 40 45

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Xaa Xaa Phe Xaa Tyr Gly Gly Cys Xaa Xaa Asn Xaa Asn Asn Phe Glu
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<223> definition of aprotonin-like Kunitz domain (p. 11)

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<222> (9)..(9)
<223> Xaa is any amino acid

<220>
<221> misc_feature

<222> (11)..(18)
<223> Xaa is any amino acid

<220>
<221> misc_feature
<222> (19)..(19)
<223> Xaa is any Tyr or Phe

<220>
<221> misc_feature
<222> (20)..(25)
<223> Xaa is any amino acid

<220>
<221> misc_feature
<222> (27)..(28)
<223> Xaa is any amino acid

<220>
<221> misc_feature
<222> (30)..(30)
<223> Xaa is any amino acid
<220>
<221> misc_feature
<222> (31)..(31)
<223> Xaa is Tyr, Trp or Phe

<220>
<221> misc_feature
<222> (32)..(32)
<223> Xaa is any amino acid

<220>
<221> misc_feature
<222> (35)..(38)
<223> Xaa is any amino acid

<220>
<221> misc_feature
<222> (39)..(39)
<223> Xaa is Asn or Gly

<220>
<221> misc_feature
<222> (40)..(40)
<223> Xaa is any amino acid

<220>
<221> misc_feature
<222> (41)..(41)
<223> Xaa is Phe or Tyr

<220>
<221> misc_feature
<222> (42)..(46)
<223> Xaa is any amino acid

<220>
<221> misc_feature
<222> (48)..(50)
<223> Xaa is any amino acid

<400> 86

Cys Xaa Xaa Xaa Xaa Xaa Xaa Gly Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10 15

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Phe Xaa Xaa Xaa
20 25 30

Gly Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa
35 40 45

Xaa Xaa Cys
50

<210> 87
<211> 58
<212> PRT
<213> Bos Taurus

<400> 87

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 88
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Engineered B-PTI from MARK87

<400> 88

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Thr Lys Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Thr Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 89
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Engineered B-PTI from MARK87

<400> 89

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Ala Lys Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Ala Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 90
<211> 67
<212> PRT
<213> Bos taurus (Bovine Colostrum)

<400> 90

Phe Gln Thr Pro Pro Asp Leu Cys Gln Leu Pro Gln Ala Arg Gly Pro
1 5 10 15

Cys Lys Ala Ala Leu Leu Arg Tyr Phe Tyr Asn Ser Thr Ser Asn Ala
20 25 30

Cys Glu Pro Phe Thr Tyr Gly Gly Cys Gln Gly Asn Asn Asn Asn Phe
35 40 45

Glu Thr Thr Glu Met Cys Leu Arg Ile Cys Glu Pro Pro Gln Gln Thr
50 55 60

Asp Lys Ser
65

<210> 91
<211> 60
<212> PRT
<213> Bos Taurus (Bovine serum)

<400> 91

Thr Glu Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys
1 5 10 15

Lys Ala Ala Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Phe Cys
20 25 30

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Glu Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Ser Asn Asn Phe Lys
        35                  40                  45

Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55                  60


<210>  92
<211>  58
<212>  PRT
<213>  Artificial Sequence

<220>

<223>  Semisynthetic BPTI, TSCH87

<400>  92

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1               5                   10                  15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30


Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55


<210>  93
<211>  58
<212>  PRT
<213>  Artificial Sequence

<220>

<223>  Semisynthetic BPTI, TSCH87

<400>  93

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Gly Ala
1               5                   10                  15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55


<210>  94
<211>  58
<212>  PRT
<213>  Artificial Sequence
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<220>

<223> Semisynthetic BPTI, TSCH87

<400> 94

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ala Ala
1   5   10   15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20   25   30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35   40   45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50   55

<210> 95
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Semisynthetic BPTI, TSCH87

<400> 95

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Leu Ala
1   5   10   15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20   25   30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35   40   45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50   55

<210> 96
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Semisynthetic BPTI, TSCH87

<400> 96

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1   5   10   15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20   25   30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35   40   45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50   55

<210> 97
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Engineered BPTI, AUER87

<400> 97

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1   5   10   15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20   25   30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
        35   40   45

Glu Asp Cys Glu Arg Thr Cys Gly Gly Ala
    50   55

<210> 98
<211> 60
<212> PRT
<213> Dendroaspis polylepis polylepis (Black mamba venom I)

<400> 98

Gln Pro Leu Arg Lys Leu Cys Ile Leu His Arg Asn Pro Gly Arg Cys
1   5   10   15

Tyr Gln Lys Ile Pro Ala Phe Tyr Tyr Asn Gln Lys Lys Lys Gln Cys
            20   25   30

Glu Gly Phe Thr Trp Ser Gly Cys Gly Gly Asn Ser Asn Arg Phe Lys
        35   40   45

Thr Ile Glu Glu Cys Arg Arg Thr Cys Ile Arg Lys
    50   55   60

<210> 99
<211> 57
<212> PRT
<213> Dendroaspis polylepis polylepis (Black mamba venom K)

<400> 99

Ala Ala Lys Tyr Cys Lys Leu Pro Leu Arg Ile Gly Pro Cys Lys Arg
1   5   10   15

Lys Ile Pro Ser Phe Tyr Tyr Lys Trp Lys Ala Lys Gln Cys Leu Pro
20 25 30

Phe Asp Tyr Ser Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile
35 40 45

Glu Glu Cys Arg Arg Thr Cys Val Gly
50 55

<210> 100
<211> 57
<212> PRT
<213> Hemachatus hemachates

<400> 100

Arg Pro Asp Phe Cys Glu Leu Pro Ala Glu Thr Gly Leu Cys Lys Ala
1 5 10 15

Tyr Ile Arg Ser Phe His Tyr Asn Leu Ala Ala Gln Gln Cys Leu Gln
20 25 30

Phe Ile Tyr Gly Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile
35 40 45

Asp Glu Cys Arg Arg Thr Cys Val Gly
50 55

<210> 101
<211> 57
<212> PRT
<213> Naja nivea

<400> 101

Arg Pro Arg Phe Cys Glu Leu Pro Ala Glu Thr Gly Leu Cys Lys Ala
1 5 10 15

Arg Ile Arg Ser Phe His Tyr Asn Arg Ala Ala Gln Gln Cys Leu Glu
20 25 30

Phe Ile Tyr Gly Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile
35 40 45

Asp Glu Cys His Arg Thr Cys Val Gly
50 55

<210> 102
<211> 60
<212> PRT
<213> Vipera russelli

<400> 102

His Asp Arg Pro Thr Phe Cys Asn Leu Pro Pro Glu Ser Gly Arg Cys
1 5 10 15

Arg Gly His Ile Arg Arg Ile Tyr Tyr Asn Leu Glu Ser Asn Lys Cys
20 25 30

Lys Val Phe Phe Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe Glu
35 40 45

Thr Arg Asp Glu Cys Arg Glu Thr Cys Gly Gly Lys
50 55 60

<210> 103
<211> 64
<212> PRT
<213> Caretta sp. (Red sea turtle egg white)

<220>
<221> misc_feature
<222> (1)..(1)
<223> Xaa is Glu or Gln

<400> 103

Xaa Gly Asp Lys Arg Asp Ile Cys Arg Leu Pro Pro Glu Gln Gly Pro
1 5 10 15

Cys Lys Gly Arg Leu Pro Arg Tyr Phe Tyr Asn Pro Ala Ser Arg Met
20 25 30

Cys Glu Ser Phe Ile Tyr Gly Gly Cys Lys Gly Asn Lys Asn Asn Phe
35 40 45

Lys Thr Lys Ala Glu Cys Val Arg Ala Cys Arg Pro Pro Glu Arg Pro
50 55 60

<210> 104
<211> 58
<212> PRT
<213> Helix pomania

<220>
<221> misc_feature
<222> (1)..(1)
<223> Xaa is Glu or Gln

<400> 104

Xaa Gly Arg Pro Ser Phe Cys Asn Leu Pro Ala Glu Thr Gly Pro Cys
1 5 10 15

Lys Ala Ser Ile Arg Gln Tyr Tyr Tyr Asn Ser Lys Ser Gly Gly Cys
20 25 30

Gln Gln Phe Ile Tyr Gly Gly Cys Arg Gly Asn Gln Asn Arg Phe Asp
35 40 45

Thr Thr Gln Gln Cys Gln Gly Val Cys Val
50 55

<210> 105
<211> 57
<212> PRT
<213> Dendroaspis angusticeps (Eastern green mamba C13 S1 C3 toxin)

<400> 105

Ala Ala Lys Tyr Cys Lys Leu Pro Val Arg Tyr Gly Pro Cys Lys Lys
1   5   10   15

Lys Phe Pro Ser Phe Tyr Tyr Asn Trp Lys Ala Lys Gln Cys Leu Pro
            20   25   30

Phe Asn Tyr Ser Gly Cys Gly Gly Asn Ala Asn Arg Phe Lys Thr Ile
        35   40   45

Glu Glu Cys Arg Arg Thr Cys Val Gly
    50   55

<210> 106
<211> 59
<212> PRT
<213> Dendroaspis angusticeps (Eastern green mamba C13 S2 C3 toxin)

<220>
<221> misc_feature
<222> (1)..(1)
<223> Xaa is Glu or Gln

<400> 106

Xaa Pro Arg Arg Lys Leu Cys Ile Leu His Arg Asn Pro Gly Arg Cys
1   5   10   15

Tyr Asp Lys Ile Pro Ala Phe Tyr Tyr Asn Gln Lys Lys Lys Gln Cys
            20   25   30

Glu Arg Phe Asp Trp Ser Gly Cys Gly Gly Asn Ser Asn Arg Phe Lys
        35   40   45

Thr Ile Glu Glu Cys Arg Arg Thr Cys Ile Gly
    50   55

<210> 107
<211> 57
<212> PRT
<213> Dendroaspis polylepis polylepis (Black mamba B toxin)

<400> 107

Arg Pro Tyr Ala Cys Glu Leu Ile Val Ala Ala Gly Pro Cys Met Phe
1   5   10   15

Phe Ile Ser Ala Phe Tyr Tyr Ser Lys Gly Ala Asn Lys Cys Tyr Pro
            20   25   30

Phe Thr Tyr Ser Gly Cys Arg Gly Asn Ala Asn Arg Phe Lys Thr Ile
        35   40   45

Glu Glu Cys Arg Arg Thr Cys Val Val
50 55

<210> 108
<211> 59
<212> PRT
<213> Dendroaspis polylepis polylepis (Black mamba E toxin)

<400> 108

Leu Gln His Arg Thr Phe Cys Lys Leu Pro Ala Glu Pro Gly Pro Cys
1 5 10 15

Lys Ala Ser Ile Pro Ala Phe Tyr Tyr Asn Trp Ala Ala Lys Lys Cys
20 25 30

Gln Leu Phe His Tyr Gly Gly Cys Lys Gly Asn Ala Asn Arg Phe Ser
35 40 45

Thr Ile Glu Lys Cys Arg His Ala Cys Val Gly
50 55

<210> 109
<211> 61
<212> PRT
<213> Vipera ammodytes TI toxin

<220>
<221> misc_feature
<222> (1)..(1)
<223> Xaa is Glu or Gln

<400> 109

Xaa Asp His Pro Lys Phe Cys Tyr Leu Pro Ala Asp Pro Gly Arg Cys
1 5 10 15

Lys Ala His Ile Pro Arg Phe Tyr Tyr Asp Ser Ala Ser Asn Lys Cys
20 25 30

Asn Lys Phe Ile Tyr Gly Gly Cys Pro Gly Asn Ala Asn Asn Phe Lys
35 40 45

Thr Trp Asp Glu Cys Arg Gln Thr Cys Gly Ala Ser Ala
50 55 60

<210> 110
<211> 62
<212> PRT
<213> Vipera ammodytes CTI toxin

<400> 110

Arg Asp Arg Pro Lys Phe Cys Tyr Leu Pro Ala Asp Pro Gly Arg Cys
1 5 10 15

Leu Ala Tyr Met Pro Arg Phe Tyr Tyr Asn Pro Ala Ser Asn Lys Cys
20 25 30

```
Glu Lys Phe Ile Tyr Gly Gly Cys Arg Gly Asn Ala Asn Asn Phe Lys
        35                  40                  45

Thr Trp Asp Glu Cys Arg His Thr Cys Val Ala Ser Gly Ile
    50                  55                  60


<210>  111
<211>  62
<212>  PRT
<213>  Bungarus fasciatus VIII B toxin

<400>  111

Lys Asn Arg Pro Thr Phe Cys Asn Leu Leu Pro Glu Thr Gly Arg Cys
1               5                   10                  15

Asn Ala Leu Ile Pro Ala Phe Tyr Tyr Asn Ser His Leu His Lys Cys
            20                  25                  30

Gln Lys Phe Asn Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe Lys
        35                  40                  45

Thr Ile Asp Glu Cys Gln Arg Thr Cys Ala Ala Lys Tyr Gly
    50                  55                  60


<210>  112
<211>  59
<212>  PRT
<213>  Anemonia sulcata

<400>  112

Ile Asn Gly Asp Cys Glu Leu Pro Lys Val Val Gly Pro Cys Arg Ala
1               5                   10                  15

Arg Phe Pro Arg Tyr Tyr Tyr Asn Ser Ser Ser Lys Arg Cys Glu Lys
            20                  25                  30

Phe Ile Tyr Gly Gly Cys Gly Gly Asn Ala Asn Asn Phe His Thr Leu
        35                  40                  45

Glu Glu Cys Glu Lys Val Cys Gly Val Arg Ser
    50                  55


<210>  113
<211>  56
<212>  PRT
<213>  Homo sapiens


<400>  113

Lys Glu Asp Ser Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Met Gly
1               5                   10                  15

Met Thr Ser Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
            20                  25                  30
```

Phe Gln Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu
35 40 45

Lys Glu Cys Leu Gln Thr Cys Arg
50 55

<210> 114
<211> 61
<212> PRT
<213> Homo sapiens

<400> 114

Thr Val Ala Ala Cys Asn Leu Pro Val Ile Arg Gly Pro Cys Arg Ala
1 5 10 15

Phe Ile Gln Leu Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Leu
20 25 30

Phe Pro Tyr Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe Tyr Ser Glu
35 40 45

Lys Glu Cys Arg Glu Tyr Cys Gly Val Pro Gly Asp Glu
50 55 60

<210> 115
<211> 60
<212> PRT
<213> Bungarus multicinctus (beta bungarotoxin B1)

<400> 115

Arg Gln Arg His Arg Asp Cys Asp Lys Pro Pro Asp Lys Gly Asn Cys
1 5 10 15

Gly Pro Val Arg Ala Phe Tyr Tyr Asp Thr Arg Leu Lys Thr Cys Lys
20 25 30

Ala Phe Gln Tyr Arg Gly Cys Asp Gly Asp His Gly Asn Phe Lys Thr
35 40 45

Glu Thr Leu Cys Arg Cys Glu Cys Leu Val Tyr Pro
50 55 60

<210> 116
<211> 60
<212> PRT
<213> Bungarus multicinctus (beta bungarotoxin B2)

<400> 116

Arg Lys Arg His Pro Asp Cys Asp Lys Pro Pro Asp Thr Lys Ile Cys
1 5 10 15

Gln Thr Val Arg Ala Phe Tyr Tyr Lys Pro Ser Ala Lys Arg Cys Val
20 25 30

Gln Phe Arg Tyr Gly Gly Cys Asp Gly Asp His Gly Asn Phe Lys Ser
35 40 45

Asp His Leu Cys Arg Cys Glu Cys Glu Leu Tyr Arg
50 55 60

<210> 117
<211> 58
<212> PRT
<213> Bos taurus

<400> 117

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Lys Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Phe Cys Glu Thr
20 25 30

Phe Val Tyr Gly Gly Cys Lys Ala Lys Ser Asn Asn Phe Arg Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 118
<211> 61
<212> PRT
<213> Tachypleus tridentatus

<400> 118

Thr Glu Arg Gly Phe Leu Asp Cys Thr Ser Pro Pro Val Thr Gly Pro
1 5 10 15

Cys Arg Ala Gly Phe Lys Arg Tyr Asn Tyr Asn Thr Arg Thr Lys Gln
20 25 30

Cys Glu Pro Phe Lys Tyr Gly Gly Cys Lys Gly Asn Gly Asn Arg Tyr
35 40 45

Lys Ser Glu Gln Asp Cys Leu Asp Ala Cys Ser Gly Phe
50 55 60

<210> 119
<211> 62
<212> PRT
<213> Bombyx mori

<220>
<221> misc_feature
<222> (14)..(14)
<223> Xaa is Phe or Gly

<400> 119

Asp Glu Pro Thr Thr Asp Leu Pro Ile Cys Glu Gln Ala Xaa Asp Ala
1 5 10 15

Gly Leu Cys Phe Gly Tyr Met Lys Leu Tyr Ser Tyr Asn Gln Glu Thr
20 25 30

Lys Asn Cys Glu Glu Phe Ile Tyr Gly Gly Cys Gln Gly Asn Asp Asn
35 40 45

Arg Phe Ser Thr Leu Ala Glu Cys Glu Gln Lys Cys Ile Asn
50 55 60

<210> 120
<211> 56
<212> PRT
<213> Bos taurus

<400> 120

Lys Ala Asp Ser Cys Gln Leu Asp Tyr Ser Gln Gly Pro Cys Leu Gly
1 5 10 15

Leu Phe Lys Arg Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr
20 25 30

Phe Leu Tyr Gly Gly Cys Met Gly Asn Leu Asn Asn Phe Leu Ser Gln
35 40 45

Lys Glu Cys Leu Gln Thr Cys Arg
50 55

<210> 121
<211> 61
<212> PRT
<213> Bos taurus

<400> 121

Thr Val Glu Ala Cys Asn Leu Pro Ile Val Gln Gly Pro Cys Arg Ala
1 5 10 15

Phe Ile Gln Leu Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Arg
20 25 30

Phe Ser Tyr Gly Gly Cys Lys Gly Asn Gly Asn Lys Phe Tyr Ser Gln
35 40 45

Lys Glu Cys Lys Glu Tyr Cys Gly Ile Pro Gly Glu Ala
50 55 60

<210> 122
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Engineered BPTI (KR15, ME52)

<400> 122

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Arg Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Glu Arg Thr Cys Gly Gly Ala
50 55

<210> 123
<211> 59
<212> PRT
<213> Artificial Sequence

<220>

<223> Isoaprotinin G-1

<220>
<221> misc_feature
<222> (1)..(1)
<223> Xaa is Glu or Gln

<400> 123

Xaa Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys
1 5 10 15

Ala Arg Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln
20 25 30

Pro Phe Val Tyr Gly Gly Cys Arg Ala Lys Ser Asn Asn Phe Lys Ser
35 40 45

Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 124
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Isoaprotinin 2

<400> 124

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Pro
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ser
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 125
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Isoaprotinin G-2

<400> 125

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Arg Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Pro
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 126
<211> 58
<212> PRT
<213> Artificial Sequence

<220>

<223> Isoaprotinin 1

<400> 126

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Lys Met Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Phe Cys Glu Thr
20 25 30

Phe Val Tyr Gly Gly Cys Lys Ala Lys Ser Asn Asn Phe Arg Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 127
<211> 11
<212> DNA
<213> Artificial Sequence

<220>

<223> PfMI restriction site

<220>
<221> misc_feature
<222> (4)..(8)
<223> n is a, c, g or t

<400> 127
ccannnnntg g 11

<210> 128
<211> 15
<212> DNA
<213> Artificial Sequence

<220>

<223> XcmI restriction site

<220>
<221> misc_feature
<222> (4)..(12)
<223> n is a, c, g or t

<400> 128
ccannnnnnn nntgg 15

<210> 129
<211> 9
<212> PRT
<213> Artificial Sequence

<220>

<223> amino acids 13-21 of EpiNE alpha

<400> 129

Pro Cys Val Ala Met Phe Gln Arg Tyr
1   5

<210> 130
<211> 6
<212> PRT
<213> Artificial Sequence

<220>

<223> amino acids 15-20 of EpiNE-7

<400> 130

Val Ala Met Phe Pro Arg
1   5

<210> 131
<211> 4
<212> PRT
<213> Artificial Sequence

<220>

<223> amino acids 35-38 of HNE

<400> 131

Tyr Gly Gly Cys
1

<210> 132
<211> 9
<212> PRT
<213> Artificial Sequence

<220>

<223> amino acids 13-21 of BPTI

<400> 132

Pro Cys Lys Ala Arg Ile Ile Arg Tyr
1 5

<210> 133
<211> 9
<212> PRT
<213> Artificial Sequence

<220>

<223> amino acids 13-21 of EpiNE3

<400> 133

Pro Cys Val Gly Phe Phe Ser Arg Tyr
1 5

<210> 134
<211> 9
<212> PRT
<213> Artificial Sequence

<220>

<223> amino acids 13-21 of EpiNE6

<400> 134

Pro Cys Val Gly Phe Phe Gln Arg Tyr
1 5

<210> 135
<211> 9
<212> PRT
<213> Artificial Sequence

<220>

<223> amino acids 13-21 of EpiNE7

<400> 135

Pro Cys Val Ala Met Phe Pro Arg Tyr
1 5

<210> 136
<211> 9
<212> PRT
<213> Artificial Sequence

<220>

<223> amino acids 13-21 of EpiNE4

<400> 136

Pro Cys Val Ala Ile Phe Pro Arg Tyr
1 5

<210> 137
<211> 9
<212> PRT
<213> Artificial Sequence

<220>

<223> amino acids 13-21 of EpiNE8

<400> 137

Pro Cys Val Ala Ile Phe Lys Arg Ser
1 5

<210> 138
<211> 9
<212> PRT
<213> Artificial Sequence

<220>

<223> amino acids 13-21 of EpiNE1

<400> 138

Pro Cys Ile Ala Phe Phe Pro Arg Tyr
1 5

<210> 139
<211> 9
<212> PRT
<213> Artificial Sequence

<220>

<223> amino acids 13-21 of EpiNE5

<400> 139

Pro Cys Ile Ala Phe Phe Gln Arg Tyr
1 5

<210> 140
<211> 9
<212> PRT
<213> Artificial Sequence

<220>

<223> amino acids 13-21 of EpiNE2

<400> 140

Pro Cys Ile Ala Leu Phe Lys Arg Tyr
1 5